REMARKS/ARGUMENTS

The specification has been revised to conform it to the preferred format for U.S. patent applications as required in the Office Action, and a Substitute Specification and Comparison Copy are submitted herewith.

Claims 1-12 and 14-16 are pending in this application. Claim 13 has been canceled.

The claims were reworded to substitute the routinely used "wherein" or "including" for the less common "characterized in that" and "characterized by" terminology appearing in the claims as originally filed. These changes were made for purposes of clarification unrelated to patentability concerns.

Claim 1 was objected to for typographical error, and claim 11 was rejected for lacking antecedent for "the mixing cone". Both claims were corrected, claim 1 by substituting "than" for "then", and claim 11 by changing "the" to "a", for purposes of clarification unrelated to patentability concerns.

Claims 1-9 and 11-12 were rejected for obviousness over Bacher (5,536,154) in view of Teeny (5,110,055). Bacher was viewed as teaching the claimed apparatus except that Bacher fails to teach a temperature sensor at each level. Teeny was viewed as teaching at least one temperature sensor for each level. From this, it was concluded that it would be obvious to include the temperature sensor (as well as the dust collector of Teeny) in the device of Bacher.

The present invention is directed to an apparatus for processing synthetic materials which has first and second receptacles in which the material is successively treated. Each receptacle has rotating tools for mixing and heating the material which are located at at least two different elevational levels within each receptacle and that are mounted on disc-shaped tool carriers, likewise disposed one above the other, that limit the downstream movement of the introduced material being treated to an annular gap between the disc-shaped tool carrier and the surrounding wall of the receptacle, thereby enhancing the dwell-time for the packed particles in

the receptacle (page 2, last full paragraph of the application as originally filed) to build up what the application refers to as mixing cones 30 (page 4, first full paragraph of the application as originally filed). A temperature sensor 32 is provided for each level of the circulating tools 21, as is illustrated in the drawing and described on page 4, first full paragraph of the application as originally filed. The sensors are arranged higher than the associated tool carriers, as is described in the second-to-last paragraph on page 6 of the application as originally filed.

Accordingly, claim 1 is limited amongst others to "at least two tools [which] each circulate in different levels one above the other" (underlining added) in the receptacles. In the Office Action, Bacher was characterized as disclosing to circulate the tools "in different levels one above the other (figures 1 and 2; column 3, lines 45-50; column 6, lines 13-15) ...." As is readily seen from Figs. 1-3 of Bacher, there is only one set of tools in each receptacle. Thus, Bacher does not disclose or in any form suggest to arrange the tools in different levels one above the other.

Applicants point out that the Teeny patent, like Bacher, also fails to disclose arranging at least two tools at different levels from each other. Teeny discloses one set of tools which rotate in one plane of the receptacle only.

Supplementing the above-quoted limitation, claim 1 further requires the tools mounted on the disc-shaped tool carriers in both receptacles to be "disposed one above the other". Bacher (as well as Teeny) has only one tool carrier in each receptacle.

By arranging the disc-shaped tool carriers one above the other as required by claim 1, a plurality of compartments are formed within the receptacle, one above the other. The material introduced into the receptacle from above sequentially reaches the compartments. As a result, material gradually passes the disc-shaped tool carrier through the gap between the periphery of the disc of the tool carrier and the side wall of the container. In other words, the disc-shaped tool carrier constitutes an obstacle which must be overcome by the material circulating within a compartment of the receptacle in order to reach the next compartment

disposed below. This ensures a sufficient dwell-time for each particle of the processed material within each one of the compartments separated from each other by the disc-shaped tool carriers.

Bacher discloses that tool 5 is rotatable about vertical axis 4 in a single plane located at the bottom of the receptacle. Applicants disagree with the assertion on page 4 of the above-referenced Office Action that Bacher discloses that "the tools are mounted on disc-shaped tool carriers disposed one above the other .... (column 3, lines 50-60)". Neither the referred-to text of Bacher, nor any other part of its specification or the drawings, anywhere mention or show that the tools on the disc-shaped tool carriers are disposed one above the other.

In this context, applicants also point out that Bacher does not disclose that the tools are mounted on disc-shaped tool carriers.

For these reasons, claim 1 is not obvious over Bacher and Teeny.

Claim 1 further recites that "at least one temperature sensor is provided for each level of the circulating tools ...."

Teeny was viewed as disclosing that there is "at least one temperature sensor provided for each level of the circulating tools ...." Teeny has one receptacle, tools that circulate in one level only, and one thermocouple. Teeny does not have and therefore does not disclose or in any manner suggest to arrange the tools so that they circulate at different levels. As a result, it also does not (and cannot) disclose or suggest to place a thermocouple (or temperature sensor) for each of a (non-existing) plurality of levels in which the tools of the present invention circulate.

For at least this further reason, claim 1 is not obvious over Bacher in view of Teeny.

Still further, claim 1 requires that the temperature sensor for each level of the circulating tools is disposed "higher than the level associated to it".

The Office Action acknowledged that Bacher does not teach this and relied on Teeny as disclosing to place thermocouple 87 into the receptacle, but Teeny does not teach or

suggest that the thermocouple is "above the stator blade" as asserted in the Office Action. Fig. 2 of Teeny illustrates that the thermocouple and the stator blade 84 are at the same level. Moreover, drawing illustrations do not normally support dimensional features, such as the relative position of two parts (e.g. 84, 87), unless that is described in the specification or it is unequivocally shown in the drawings. Neither is the case here because Fig. 2 shows that the two parts (84, 87) are at the same level—the top surfaces of the two parts are in alignment, and to the extent the drawings can be used to determine the relative positions of the two parts, they show that the parts are at the same level and that the thermocouple is not located above the stator blade.

Since the disc-shaped tool carriers disposed one above the other form separate compartments within each receptacle, different temperatures (of the processed material) are likely to occur within the compartments of the receptacle. These temperatures must be controlled to avoid an overheating of the material, because any overheating would deteriorate the quality of the final product obtained at the exit opening of the apparatus. Bacher or Teeny do not have disc-shaped carriers, one above the other. Bacher and Teeny have no need and therefore do not teach or suggest to place a temperature sensor above each carrier for measuring the temperature in the spaces above the respective carriers.

For at least this additional reason, claim 1 is not obvious over Bacher or Teeny.

In view of the foregoing, applicants submit that claim 1 is not obvious over Bacher and Teeny and is therefore in condition for allowance.

Dependent claims 2-12 and 14-16 are directed to specific features of the present invention which render the claims independently patentable. These claims are further allowable because they depend from an allowable parent claim.

CONCLUSION

Accordingly, applicants submit that this application is in condition for allowance and request a corresponding notification at an early date.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (415) 273-4730 (direct dial).

Respectfully submitted,

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